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On the Causes of the Fluctuations in the Herring Fishery.

By JOHN CLEGHORN, Esq.

[Read before the Statistical Section of the British Association for the Advancement of Science at Liverpool, on the 26th of September, 1854.]

THE Herring Trade is so important a branch of national industry, and is characterized by fluctuations so ruinous to those engaged in it, that it appears to me any facts that may throw light on its changes would interest the association and tend to the more successful prosecution of the fishing.

Popularly little is known of the natural history of the herring, and to this cause is to be imputed the uncertainty and loss that is so prominent a feature in its history. As specimens of the jumble of uncertainty that characterises the popular opinions on this important department of the subject, I beg to submit the following:—

To account for the disappearance of the herring from some of the islands on the west coast, the Secretary of the Commissioners for the British Herring Fishery says, in his report for 1844, p. 7, "That the only rational manner in which this phenomenon can be accounted for is, by supposing that it may have arisen from the cutting of the sea-weed for the manufacture of kelp on the shores of the bays and inlets where the fish came regularly from the neighbouring deeps for the purpose of spawning, which thus deprived the ova of the means of attachment and protection." In the report for 1848, the Commissioners say, "All fishings are fluctuating in their character, and liable to alternate diminution and increase; the deficiency alluded to can excite but little surprise." In the "*North British Daily Mail*," a Wick correspondent writes, as follows, in July last. "There are still no herrings worth speaking of. We are nearly 8,000 crans short of last year. It is worth remarking, that in 1834, twenty years ago, our fishing was a complete failure, and that the preceding year's catch was more abundant than any that went before it. Last year our fishing exceeded all preceding years, and now it looks as if this season were to be a counterpart of 1834. Have we in these twenty years seen a cycle in the natural history of the herring? We know they visit our coast for food fitted to enable them to mature their milt and roe. Is the food of the herring this year deficient? It looks like it.

Mr. Hogarth has the salmon fishing at Castlehill, on the Pentland Firth, and was there in his yacht about a month ago. Mr. Stewart, the factor there, was on board, and Mr. Hogarth said to him, I can see, from the state of these salmon there, that we will have a poor fishing this year.—*Mr. Stewart.* Why think you so?—*Mr. Hogarth.* I see they have been hungered. The salmon fishing has turned out just as Mr. Hogarth predicted. In the natural history of the salmon and the herring there are many points of analogy.

At present Wick is the chief seat of the herring fishery. "This season there were 920 boats engaged in the fishing here, and the produce has been," says the "*John O'Groat Journal*," "95,680 crans," or barrels. On comparing this with that of 1825 we are 14,000 barrels short, and, as compared with 1830, we are 57,000 barrels less. It is the smallest fishing since 1840, and it is 61,000 barrels short of last year. Various surmises are afloat as to the cause of this

deficiency, but the generally received opinion is, that the whole falling off is owing to two rough nights, on which the boats did not put to sea while great shoals of herrings were on the coast. That this is an erroneous or very partial view of the matter, I infer, because at all the stations between Nosshead and Cape Wrath the fishing has been a complete failure, and the same may be said of Orkney and Shetland, while for the whole of Scotland the shortcoming is, perhaps, one-third of last year.

The cause, then, is general, and to arrive at correct conclusions as to this cause we must, I apprehend, make ourselves acquainted with the "life and conversation," as Gilbert White says, of the herring. Without entering into the minutiae of their lives, I would notice that in his "Natural History of Selborne," White says, "The two great motives which regulate the proceedings of the brute creation are love and hunger—the one incites them to perpetuate their kind, the latter induces them to preserve individuals." In obedience to those laws the herring congregates on our coasts, for there only they find food fitted to mature their milt and roe, and a sea bottom appropriate for receiving their spawn, consequently they are brought within the scope of those agents employed for their capture. Let us see what those agents are. 10,974 boats, 41,045 sailors employing 81,934,330 square yards of netting, an extent of netting that would cover an area of $26\frac{1}{2}$ square miles; and if the nets were extended lineally they would reach a distance of 4,741 miles.

May we not have drawn over liberally on our shoals of herring? With such appliances may we not have overfished the sea? That a river or lake may be overfished, or that the whales between the tropics and at the poles may have their numbers so thinned that the fishing would cease to pay, will be readily conceded; but nobody here ever dreams of imputing the failures in the herring fishing to our having overdone it. The Commissioners for the British fisheries, in their Report for 1850, hint that overfishing has told on the cod and ling, for they say at page 3, "By the statements of the fishermen generally, it appears that the boats are almost everywhere obliged to go further from the land than formerly before they find fish; and hence it is assumed either that the fish have changed their runs on account of the fishing that has been carried on, or that the fishing grounds near the shore have been overfished. Of this there is no doubt that much longer voyages are now undertaken in connection with the cod fishing. Expeditions of smacks and other vessels to Davis Straits to fish cod have, in recent years, been established with varied success. An attempt to increase the supplies of fish has been set on foot in another direction. Two English smacks made different trips to Iceland, landing their fish, as they brought them home, at Stornoway, in Lewis."

The truth is, the cod and ling fishing in the German Ocean is now not worth the prosecuting. Is it true that a river or a lake may be overfished, that we may extirpate the whole or so thin their numbers, that they may not be worth seeking, that even the cod and ling may be considered rare fish in their old haunts, and yet with our 81,934,330 square yards of netting make no sensible impression on the shoals of herrings? Let us see what has happened.

At the beginning of the present century the chief seats of the herring fishing were on the west coast. "Half a century ago," say the Commissioners, "the hopes of those engaged in the national fisheries seemed to be confined to the Firth of Forth and the lochs of the west coast of Scotland." The west coast waters were fished till fishing them ceased to pay.

From inquiries I have made into the statistics of the herring fishing on the west coast stations and those on the east coast that have been long fished, they present a steady progression in the quantities of herring caught up to a culminating point, then violent perturbations and final extinction as curing districts. Other waters are tried and found to pay—the same scenes are again enacted and with like results. The periods through which these changes move are varied by local causes. An extensive and sheltered seaboard, sheltered from violent tides, fitted for the resort of the herring, and with few stations fitted for the reception of boats, protracts the period towards extinction, while extensive accommodation for boats shortens the period. The conservative agencies at work are storms, and the strict observance of Sunday during the fishing season, the boats not going to sea on Saturday or Sunday nights, for then a portion, at least, of the shoals have time to deposit their spawn.

The British Association, by directing attention to the British herring fishery, will lend important assistance towards the saving of our fishing and the making it a perennial source of wealth to the nation.

On the Loans raised by Mr. Pitt during the First French War, 1793-1801; with some statements in defence of the Methods of Funding employed. By WILLIAM NEWMARCH, ESQ., one of the Honorary Secretaries of the Statistical Society.

[Read before the Statistical Society, on Monday, the 19th of February, 1855.]

APPENDIX.

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| <p>A.—Loans raised by Mr. Pitt, 1793-1801.—Capitals Funded in the several kinds of Stock.</p> <p>B.—Loans raised by Mr. Pitt, 1793-1801.—Quantity of Stock given for every 100<i>l</i>. Money.—Market Prices of Stock at the time of the Loan.</p> <p>C.—Loans raised by Mr. Pitt, 1793-1801.—Amount of the Annual Interest on each Loan.</p> <p>D.—Income of the United Kingdom 1792-1802; and also for 1815, 1825, and 1852.</p> <p>E.—Expenditure of the United Kingdom—same years.</p> <p>F.—Net Revenue of Great Britain at seven dates, between 1712 and 1789.</p> <p>G.—Imports and Exports.—Great Britain.—Official Values.—Period of American War 1777-83.—Peace 1784-92.—First French War 1793-1802.</p> <p>H.—Corn.—Prices and Importations during the Three Decennial Periods 1761-70, 1771-80, and 1781-90; and for each year 1791-1802.</p> <p>I.—Subsidies to Foreign States 1793-1801.</p> <p>J.—Terms of the Loans raised by France 1815-48.</p> <p>K.—Mr. Pitt's Budgets 1793-1801.—Abstract of New Taxes Imposed, with the estimated produce when proposed to Parliament.</p> | <p>L.—Motions made in Parliament for Peace, December 1792 to May 1797.</p> <p>M.—Market Prices of Stocks, Long Annuities, and of Scrip, and Omnium, in each month, from January 1791 to December 1800, with columns of the Equated Prices.</p> <p>N.—Detailed Computations of the effect produced in a period of years by the Difference of terms between Loans contracted in Low Rate and High Rate Stocks.</p> <p>O.—Similar Computations as regards the Loan of 8,000,000<i>l</i>., of March 1847.</p> <p>P.—Statement in Detail of the Terms of the several Loans 1793-1801, as given by Mr. Grellier in the Third Edition (1812) of his work on the subject.</p> <p>Q.—General View of all the Loans raised during the entire Period of the War, or from 1793 to 1806; and computations as to the General Comparative effect of raising the Extra Expenditure by Loans, or by Supplies within the Year.</p> <p>R.—General Observations on the Contents of some of the Appendices.</p> |
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